ALBERTA, OIL PROVINCE OF CANADA, IN 1938

By J. L. Irwin,

Statistician, Dept. of Lands and Mines,
Government of the Province of Alberta.

It was stated a year ago that in the world history of oil and its development at the close of 1938 it would be indeed interesting to see the place which would be accorded to Alberta. That statement is now justified.

The province's oil activities and development for this year have been unquestionably spectacular in spite of the drastic proration of wells, which was enforced to hold the ever increasing production down to a seasonable and localized market. The production total for the year was 6,742,039 barrels.

This 1938 total of 6,742,039 - 257,961 barrels short of the general prediction that Alberta would reach 7,000,000 - compares rather strikingly, however, with that of 2,796,908 barrels for 1937 and with 1,320,442 for 1936. The seven million figure would have been passed easily for 1938 but for the additional and heavy proration of wells, levied in the last three months of the year as a result of the usual seasonal drop in local demand.

A production increase over 1937 of approximately 4,000,000 barrels must be regarded as a most satisfactory report of Alberta's progress in 1938 as an oil producing province of world importance.

ALBERTA OIL PRODUCTION

1937 and 1938

Month	1937 Barrels	1938 Barrels	Increase Barrels
January	127,977	444,196	316,219
February	140,515	401,587	261,072
March	161,832	467,732	305,900
April	172,608	447,241	274,633
May	175,997	546,719	370,722
June	191,634	521,895	330,261
July	226,000	678,243	452,243
August	271,898	799,023	527,125
September	281,154	867,939	586,785
October	325,723	667,454	341,731
November	326,677	427,236	100,559
December	394,893	472,774	77,881
TOTALS	2,796,908	6,742,039	

Increase, 1938 over 1937, 3,945,131 barrels.

Another, table, which shows Alberta's oil production by calendar years from 1914 to date and which gives a comprehensive picture of the province's development in this industry for the

last 24 years, appears as follows:-

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels
1914 to 1924	96,504
1925	168,643
1926	219,598
1927	332,133
1928	489,531
1929	999,152
1930	1,433,844
1931	1,455,195
1932	917,622
1933	1,013,040
1934	1,265,940
1935	1,263,750
1936	1,320,442
1937	2,796,908
1938	6,742,039
Total Alberta oil production from 1914 to 1938	20,514,341

HISTORY OF THE YEAR'S DEVELOPMENT

The most important event of the year, the bringing in to production of Home (Millarville), No.2, materialized towards its close.

The importance of this event is due to the fact of its isolated position from the proven crude oil zone in southern Turner Valley. Home, No.2 is situated in the extreme north of the field - legal subdivision 6 of section 33, township 20, range 3, west of the 5th meridian, - which is approximately 2 miles north-west of Royalite, No.29, the next most northern crude oil producer in Turner Valley.

Striking the upper lime zone at a depth of 8,032 feet, oil of a 40° Beaume gravity was produced in sufficient quantities to prove that a good commercial well had been established. It was decided, however, to continue drilling to the lower porous section of the lime and secure production from both. With this accomplished the well on its first test gave a flush production of 50 barrels an hour or 1200 barrels a day with gas pressure strong and increasing.

Home, No.2 was completed at a depth of 8,495 feet, 15 feet in the black lime. The upper porous zone was at 8,151 to 8,235 feet and the lower at 8,395 to 8,473 feet, two stray porous horizons having also been discovered between 8,241 and 8,319 feet.

This new well is 17 miles to the north-west of the proven crude oil zone in the southern end of the Valley. Its coming into production as a major crude producer opens a new and extensive area in the northern end and greatly enlarges the whole field. With the addition of this new potential area, negotiations are already under way for the drilling of more wells in the vicinity, the locations of which are to range anywhere from 2 to 6 miles to the north-west of Home, No.2.

The development of Okalta, No.6 well has been watched with much interest. While it is too early yet to make a statement regarding the final stages of this development, it may be said, however, that the drilling of this well, in this isolated location to the west, has now defined how far oil extends down the west flank.

At the close of 1938 there were 64 producing crude wells in Turner Valley, compared with only 35 at the end of 1937; 14 others are drilling and there are plans for starting at least 20 more.

Many large producers were completed during the year and flush productions of the biggest ran from 2,000 to over 5,000 barrels per day.

CONSERVATION

During 1938 a definite step was taken with regard to conservation, which would put a stop at last to the deplorable wastage of gas with the field's resultant loss of pressure and which as a result would ensure an orderly development of oil.

This measure fills a long felt want in its offer of protection to the life of the field. With the regulating and conserving of production on such a basis a new confidence would be established in the permanence of this industry which is proving of such vital importance to both the province and the dominion.

With this in view the Petroleum and Natural Gas Conservation Board was formed during the year and opened its offices in July with Calgary as its headquarters and with a field office in Turner Valley.

The personnel of the Board is as follows:- W. F. Knode, well known Texas consulting engineer and conservation expert, highly recommended to the Alberta Government by the United States Bureau of Mines, was appointed chairman. Other members are C. W. Dingman, late Director of the Petroleum and Natural Gas Division of the Department of Lands and Mines, and F. G. Cottle, C.A., late Auditor of the Board of Public Utility Commissioners of the Alberta Government.

AN ACT FOR THE CONSERVATION OF THE OIL AND GAS RESOURCES OF THE PROVINCE OF ALBERTA

On November 22nd, 1938, an Act was promulgated on the authority of which the Board now functions. The title of this legislation is "An Act for the Conservation of the Oil and Gas Resources of the Province of Alberta." A brief summary of the Act follows:-

PART I

The Act is subdivided into four parts. Following the preamble, Part I carries the sub-title of "Relating to the Conservation of Oil Resources and Gas Resources."

This section opens with the constitution of the Board which is to be limited to three members of whom one shall be chairman. With reference to the personnel, already named, W. F. Knode, the chairman, is to hold office until June 30th, 1939, and thereafter during the pleasure of the Lieutenant-Governor in Council. F. G. Cottle, C.A., and C.W. Dingman, the other two members, are to hold office until June 30th, 1943, and, subsequent to that date, during the pleasure of the Lieutenant-Governor in Council. Should a vacancy in the membership of the Board occur at any time, such vacancy is to be filled by an appointment to be made by the Lieutenant-Governor in Council, the appointee to hold office for a period of five years with a possible extension to this period being sanctioned.

The Board is authorized and empowered to perform and carry out all duties conferred upon it by the Act, such duties to include the keeping of complete minutes of all meetings, records of all financial business, the employment of professional persons and others, the services of whom may become necessary to carry out the various activities of the Board.

Authorization for the control and regulation of petroleum is laid down, the control to be effected either by restriction or prohibition or both with the repressuring of any field which may be deemed necessary.

Within six months of the date upon which the Act comes into force, the preparation of a scheme or schemes for the provision of compensation for persons who may be injured by conservation orders is to be arranged. For the payment of such compensation the Board is to levy the amount thereof by means of a uniform rate on the dollar upon the assessed value of all the petroleum property of the persons who are liable under the scheme for the payment of such compensation.

Owners of producing wells or those in ownership or control of refineries shall keep all records of petroleum produced or received at refineries, giving the disposition of same with details as to quantity, quality and prices payable.

PART II

Part II of the Act empowers the Board to undertake enforcement of any regulations pursuant to "The Oil and Gas Wells Act, 1931" whenever such enforcement is directed by the Lieutenant-Governor in Council.

PART III

Part III outlines in detail the assessment and taxation of petroleum properties from the viewpoint of definitions, liability to assessment and taxations, exemption from same, penalties for non-payment of tax, power of Board to order seizure to enforce payment and other matters pertinent to this general heading.

PART IV

Part IV deals with the provisions of general application and the powers of the Board as to procedure.

This section opens with the constitution of the Board which is to be limited to three members of whom one shall be chairman. With reference to the personnel, already named, W. F. Zonde, the chairman, is to hold office until June 30th, 1950, and thereafter during the pleasure of the Lieutenant-Governor in Council. T. G. Cottle, Q.A., and C. T. Simpson, the other two members, are to hold office until June 30th, 1948, and, subsequent to that date, during the pleasure of the Lieutenant-Governor in Council. Should a vacancy in the membership of the Board occur at any time, such vacancy is to be filled by an appointment to be made by the Lieutenant-Governor in Council, the appointee to hold office for a period of five years with a possible extension for this period being contemplated.

The Board is authorized and empowered to perform and carry out all duties conferred upon it by the Act, such duties to include the granting of licences relating to all activities, records of all financial business, the employment of professional persons and others, the services of which may become necessary to carry out the various activities of the Board.

Authorization for the control and regulation of petroleum is laid down, the control to be effected either by prohibition or prohibition in part with the requirements of any field which may be deemed necessary.

Within six months of the date upon which the Act comes into force, the impounding of a sample or samples for the purpose of determination for purposes which may be disputed by consumption contracts is to be arranged. For the purpose of such determination the Board is to levy the amount thereof by means of a uniform rate on the dollar upon the assessed value of all the petroleum, by party of the persons who are liable under the actions for the payment of such determination.

Dumping of production wells or those in existence or control of refineries shall keep all records of petroleum produced or produced at refineries, giving the distribution of same with details as to quantity, quality and prices.

PART II

Part II of the Act requires the Board to maintain enforcement of any regulations pursuant to "The Oil and Gas Wells Act, 1951" whenever such enforcement is directed by the Lieutenant-Governor in Council.

PART III

Part III outlines in detail the assessment and taxation of petroleum impounded from the viewpoint of definitions, liability to assessments and taxation, exemption from assessment for non-payment of tax, power of Board to order adjustments and other matters pertinent to this general business.

PART IV

Part IV deals with the prevention of general application and the powers of the Board as to procedure.

Steps may be taken and persons employed, if considered necessary, for the enforcement of any order which is made, and, for the purposes thereof, seizure and possession of movable or immovable property in or about any well, together with the books and offices of the owner. Until such order has been complied with, production may be discontinued or the Board may take over management and control of same.

With reference to investigation or procedure of such a nature, any representative of the Board shall have the powers which may be conferred upon a commissioner appointed pursuant to "The Public Inquiries Act" for the purpose of taking evidence and for compelling the attendance of witnesses and the production of documents.

The balance of Part IV deals with powers conferred on the Board relative to inspection of wells and refineries, penalties for failure to comply with provisions of the Act, disposition of taxes and penalties collected, and other matters relative to provisions as laid down for general application of the Act.

BOARD TO CONTROL DRILLING OPERATIONS

On January 11th, 1939, Order in Council, No. 45-39 came into force, by the provisions of which drilling of wells should come under the control of the Board.

Prior to this date the Board was in charge only of production, the responsibility for all drilling operations being assigned to the Minister. As a result of this order applications for drilling permits were in future to be made out to the Board instead of, as formerly, to the Department.

PRORATION OF WELLS

With the rapid growth of Alberta's oil production in 1937, coupled with the limitations of a localized market, the refineries introduced the measure of proration which became effective for the first time on September 12th, 1937, when the purchase of production was limited by them to 65% of the capacity of wells.

Towards the end of April with proration varying from time to time it was decided that new tests should be made on an eleven day basis, a well to run for ten days on the proration previously established and on the eleventh day on open-flow production. The new potential by which proration was to be calculated was to be two-thirds of open flow as demonstrated on the eleventh day. This proration varied from time to time depending on storage and market conditions and also on transportation facilities during a period when an additional pipe-line from the field to Calgary was under construction.

With the appointment of The Petroleum and Natural Gas Conservation Board in 1938 the total quantity of permitted oil production was distributed amongst crude producers by application of a formula which included the factors of gas/oil ratio, bottom hole pressure, well spacing and measured flow through a two inch nipple. On September 2nd the Board issued its first allotment of allowable production, which, based on market demand as existent on that date, was to total 28,000 barrels per day. A second allotment followed on September 12th to take care of newly completed wells, but based on the same market demand. A third, made September 24th, cared for new completions but influenced by a drop in market

reduced the allowable total to 22,000 barrels per day.

Further drops in the market with consequent reductions in allowables appeared as follows:- October 20th, allowable total, 14,500 barrels and October 28th, 11,500 barrels. On December 5th a new order increased this total to 12,500 barrels.

GAS CONSERVATION

The first gas conservation order following the Act just summarized was issued by the Board on November 30th to become effective on December 7th, which gave a total monthly allowable of all gas wells of 3,240,687 Mcf. This was to remain in force until January 15th, 1939, at which date it was the intention of the Board to further restrict production to that amount used for lighting, heating and the generation of power, together with any further amount which is returned to the earth in such manner as may be approved by the Board. On January 10th, 1939, a further order was issued which struck out the words and figures reading "until the 15th day of January, 1939," substituting in their place "until further order".

For the purpose of the order the expression "gas well" means any well at which the rate of production of oil in liquid form produced and recovered at the well head does not exceed 35 gallons of oil for 31,000 cubic feet of gas.

OTHER ALBERTA FIELDS

In addition to the encouraging record established by the Turner Valley field during 1938 is that of other oil areas throughout the province. Some have already developed production, whilst others, with the drilling of most interesting tests, hope to reach the same goal.

As already stated, the most dramatic announcement dealing with newly developed oil areas is the last one to have been made, namely, the bringing in of Home, No. 2 well, in the extreme northern part of Turner Valley.

The Ribstone area, 30 miles south-east of Wainwright, is carrying out an interesting test and at a depth of approximately 2,000 feet oil occurrences have come into evidence. North Taber Royalties, No. 1 well, 30 miles east of Lethbridge, also is attracting attention. The drilling test in this area has passed a number of gas sands which have proved encouraging.

The Ram River well, approximately 100 miles west of Red Deer, was spudded in on October 24th, and by January 16th had reached a depth of over 700 feet. The Devonian limestone was encountered at the 70 foot level when casing was set. At 300 feet came the first evidence of gas, and a core sample, taken from the 400 foot level, showed a noticeable impregnation of oil, the cores at greater depth showing increased evidence of oil together with porosity. The test is being watched with the greatest of interest.

Development work in other fields throughout the province includes the Altoba well on the Clearwater River 20 miles to the south-east of the Ram River well; the Pouce Coupe wells near the Alberta-British Columbia boundary in the Peace River country; the Home-Brazeau well in the Brazeau area; the tests at Lloydminster on the Saskatchewan border; the test at Steveville, 70 miles north-west of Medicine Hat; Moose Dome, 30 miles west of Calgary; two wells near Lundbreck in the Crowsnest Pass area; the tests at Castle River and Savannah Creek in the south-west of the province; and Milk River and Del Bonita in the international boundary area.

CROWN LEASES

Crown leases of the petroleum and natural gas rights active in Alberta for the last three years were as follows:-

Year	Number	Area covered Acres
1936	3,838	630,148.35
1937	6,466	971,312.48
1938	5,261	1,053,297.39

The reason for the reduced number in 1938, with increased acreage, is due to the fact that on March 30th, 1937, the minimum area, which could be acquired under the Petroleum and Natural Gas Regulations, was increased from 40 acres to 160 acres, excepting on isolated areas of less than 160 acres.

ROYAL COMMISSION

A feature of 1938 was a Royal Commission conducted under the chairmanship of the Hon. Mr. Justice A. A. McGillivray with Major L. R. Lipsett, marketing expert, of Ardley, Alberta, as a member. The purpose of the Commission was a probe into the price structure of fuel oils, production costs and the consideration of fair and equitable prices for petroleum products to wholesalers and retailers.

Regarding the question of Turner Valley's potential reserve of oil, evidence was given before the Commission by the following experts:- Dr. T. A. Link, Imperial Oil Geologist; Dr. B. B. Boatright and Alex. Deussen of Houston, Texas; and Stanley Gill and S. F. Shaw of San Antonio, Texas.

Estimates were made either by the porosity method of calculation of the reserves or by the method of "decline curve".

The average figure submitted by the experts regarding the life of Turner Valley was about 31 years with a reserve of approximately 200,000,000 barrels of oil. In the opinion of at least two of them, these figures, on the basis of reasonable conservation and orderly development, were given as an absolute minimum.

REDUCED FREIGHT RATES

With reference to the ever-present question of market expansion, a deputation consisting of Messrs. Herbert Greenfield, M. M. Porter and Alfred Chard has been appointed for a visit to eastern Canada. Discussions are to be opened with the railways, government and refineries with a view to seeking lower freight rates on 6,000 barrels a day of Turner Valley crude for the

British American Oil Company's refinery at Toronto and the Imperial Oil Company's at Sarnia.

A successful conclusion of this effort will mean a great deal to the Alberta oil industry. With the rapidly increasing growth of production in the province it is imperative that additional markets must become established. Pending a decision on this now all-important question, allowable production must of necessity continue to be held down to a seasonal and localized market.

WORLD CRUDE OIL PRODUCTION

For the first time over a period of years, world crude oil production showed a decrease at the end of 1938 in comparison with the previous year's total. In a most interesting and instructive review, given by the "Oil and Gas Journal" of Tulsa, Oklahoma, the following totals are shown:-

WORLD OIL PRODUCTION

(All data in barrels)

Country	1938 (est.)	1937
North America	1,258,335,039	1,327,503,750
Per cent of total	63	65
South America	248,359,000	243,210,000
Per cent of total	12.5	12
B.W.I. Trinidad	17,757,325	15,502,989
Per cent of total	.92	.76
Europe	276,089,000	267,396,000
Per cent of total	14	13
Africa: Egypt	1,500,000	1,149,000
Per cent of total	.08	.05
Asia	189,251,654	191,888,650
Per cent of total	9.5	9.19
WORLD TOTALS	1,991,292,018	2,046,650,389
Daily Average	5,455,594	5,607,261

World decrease in 1938 from 1937 - 55,432,410 barrels

The three greatest oil producing countries in 1938 were the same as in 1937, viz., the United States, Russia and Venezuela. The following shows their relative positions:-

	1938 (est.)	1937
United States	1,212,530,000	1,277,653,000
Per cent of total	60	62
Russia	217,535,000	206,717,000
Per cent of total	10	10
Venezuela	191,593,000	186,852,000
Per cent of total	9	9

Of the 26 oil producing countries reported on for 1938, 19 show increased production and 7, decreased. As increases, year by year, have appeared consistently in the various countries producing oil throughout the world over a long period of time - Roumania being the only important country to show a decrease in 1937 - it might be interesting to give a list of the countries with decreased totals for 1938, together with their production figures. They are as follows:-

	1938 (est.) Barrels	1937 Barrels	Decrease Barrels
United States	1,212,530,000	1,277,653,000	65,123,000
Iran	74,154,000	78,741,000	4,587,000
Roumania	48,800,000	52,176,000	3,376,000
Mexico	38,861,000	46,907,000	8,046,000
Peru	16,045,000	17,467,000	1,422,000
Burma	7,557,089	7,847,553	290,464
France	465,000	503,000	38,000
		TOTAL.....	82,882,464
Total increases in 1938 of the 19 other countries			27,450,054
Total world decrease in 1938 in comparison with 1937			55,432,410

Extracts from the world review of the "Oil and Gas Journal", dealing with the countries showing decreases in 1938, are quoted as follows:-

United States.- "In establishing a peak production of 1,277,653,000 bbls. in 1937, producers in this country exceeded requirements. This year's production has been curtailed so that it has more nearly balanced with needs, permitting in fact a large reduction in crude oil stocks."

Roumania.- "A continued decline in crude oil production and consequently in exports marked the year in Roumania. Failure of existing regulations to provide conditions suitable for oil development is ascribed as the chief reason for the decline, which amounted to 18 per cent in crude production."

Mexico.- "Confusion accompanying the transition from private to national ownership of the important oil properties in Mexico during the closing year depressed production and practically stifled new drilling."

Peru.- "Crude oil production in Peru showed a small decline as it did in 1937 compared to 1936:..... the International Petroleum Co., Ltd., the Lobitos Oilfields, Ltd. and the Peruvian Government have carried on considerable exploratory work over the past year with no important discoveries reported."

Amongst the 19 countries of the world to show increases last year, the three which headed the list were -

	Increases
Russia	10,818,000
Venezuela	4,741,000
Canada	4,000,289

In this connection it should perhaps be pointed out that Alberta contributed 97.09 per cent of Canada's total and that approximately 99 per cent of Alberta's total came from Turner Valley field in the southern part of the province, now extended to about 20 miles from north to south, with a width of approximately one mile as far as production is at present being obtained.

A statement has been made with reference to the potential oil reserves of the world which in round figures gives 50% to the two Americas, 25% to Russia and the remaining 25% to the rest of the world. This statement is repeated here for what it may be worth.

If it should be approximately correct, it then becomes particularly interesting to compare it with last year's production figures which give the United States 60% of the world's total, the two Americas combined 75.5%, Russia only 10% and the remaining producing countries 14.5%.

One hears sometimes that Russia, which comes second in world production, is a great conservationist country as far as oil is concerned. Whether or not this statement is correct, it is a fact that in 1937 her exports dropped 40%. An explanation is given for that, however, by the great increase in her home demand for oil. The immense Baku field is a most dependable source of supply. In the days before the coming of modern refining equipment the residue of Baku oil was used for the manufacture of briquettes which were used as fuel for the Volga steamers.

The "Oil and Gas Journal" in commenting on Russia's production for last year states as follows:- "Although the U.S.S.R. fell 11 per cent short of its planned program of production, its actual output was 5.2 per cent over that of the preceding year. ..... It is estimated domestic consumption has increased 1,500 per cent since 1930, while production increased only 250 per cent, explaining the decline in exports."

BRITISH EMPIRE PRODUCTION

The principal and perhaps the most encouraging item of information regarding the production of oil within the British Empire in 1938 was the story of Alberta's performance. Canada's production total last year, to which Alberta contributed 97.09 per cent, of 6,944,039 barrels showed an increase for the Dominion over the previous year of 4,000,289 barrels, a figure approximately half of the Empire's total increase of 8,087,824 barrels. In 1937 Canada's percentage of the Empire's production total was 7.1. In 1938 it had risen to 13.8.

At the end of this review is attached an itemized statement of Empire production over the last 7 years, giving totals and percentages of the 7 principal oil producing countries, together with general totals and percentages of the Empire's figures in relationship to world production totals.

As predicted, Canada approximately tied with Bahrein Island in the Persian Gulf and Burma for second place, the order at the end of the year being Bahrein Island, Burma and Canada. Had it not been for the drastic proration put into force in the last three months of 1938 Canada would have passed the eight million figure, thereby exceeding Burma's total, and come close

to that of Bahrein Island. Trinidad came first, as in previous years, with a record figure of 17,757,325 barrels.

Extracts from two most interesting articles in "Pearson's" and "Canada's Weekly" magazines, both of London, England and published this month, have a direct bearing on the Alberta oil situation. The one in "Pearson's", entitled "The Blood of an Empire", is an attractive presentation by C. I. Sempill, formerly of the R. A. F. Intelligence Service, Iraq, of the story surrounding that great engineering feat which laid a 1,200 mile pipe-line through the desert to the Mediterranean. The following portion of it is reproduced:-

> "But if the work is finished, the story of the line is only begun.
>
> For that thick brown stream is more than oil - it is blood: the blood of British men-o'-war that shall perhaps not fight without it, and British cargo ships that shall perhaps not sail without it.
>
> The steel line that carries it is in every sense an artery. The pumping-stations are vital pulses that may yet reflect the measure of our strength to resist and endure.
>
> Consider!
>
> In 1936 we imported 11,000,000 tons of oil. Over and above that, our ships bunkered large quantities abroad. This, upon our peaceful occasions.
>
> In war it is estimated we should require from three to five times as much.
>
> Where would it come from?
>
> We have some of our own in Burma and Trinidad; but we depend for the bulk of our supplies on fields lying under foreign soil.
>
> Eighty per cent. of the total world output comes from the two Americas: 72 per cent. from the U.S.A. alone. The remainder comes from the Dutch East Indies, Russia, Rumania, Iran - and those Kirkuk fields.
>
> The U.S.A.'s policy is one of isolation. Its Neutrality Law places an unqualified embargo on the supply of war material to any combatants.
>
> But oil is a principal war material.
>
> Supplies from Russia and Rumania must come to us through the Bosphorus and Dardanelles by favour of Turkey. Supplies from the Dutch East Indies would, in war, depend largely, if not entirely, on the good-will of Japan. The Iranian supply depends upon the Shah of Persia and future Iranian Governments.
>
> In the Great War only a few of our fighting ships and practically no merchant ships depended upon oil. To-day the Navy has not got a ship of any value that is not wholly dependent upon it. A large Air Force has grown up which is tied to the ground without it; a mechanised Army has evolved which is paralysed without it.

In the Great War we had an invaluable control over neutral shipping for the carriage of our excess tonnage; it was dependent entirely upon coal, and we controlled the world's coal bunkerage. To-day, we have 2,000 fewer merchant ships than in 1914; and the world's oil bunkerage lies largely in foreign hands.

Oil from coal will not solve our problem either. The huge plant at Billingham, in Co. Durham, produces about 3 per cent. of our motor-car requirements, and the process is uneconomical and incapable of swift expansion."

The following is reproduced from the "Canada's Weekly", also referred to:-

Empire Oil

"At the sixth Congress of the Associated West Indian Chambers of Commerce, held at Trinidad, it was unanimously resolved that whereas the Home Government had already accepted the principle of preference for petrol produced from coal in the United Kingdom, the Congress strongly urged that further and careful consideration be given by His Majesty's Government to the question of according a preference to petroleum when produced and refined within the Empire.

The rock-hard fact facing the world in the problem of oil is its uneven distribution.

Perhaps the most vivid way to picture the extent of the problem is to look at the wide-flung oil empire. Look at its vast and intricate machinery of discovery and use; drills to go two miles into the sand; pipe lines to stretch from field to port half-way across a continent; long trains and tank cars, highways full of trucks, fleets of tankers riding the ocean. Look at the infinite variety and its use. It is fuel, lubricant and source of power, dominates modern transportation, sets the rules for war. As a lubricant, it makes modern high-speed industry possible. As a fuel, it supplies that industry with more than one-third of all the energy it uses.

In 1937 the world produced more than 2,000,000,000 barrels of oil. Of these, 60 per cent. came from the United States. Russia and Venezuela each produced more than 180,000,000 barrels. The rest came from Iran, Netherlands, India, Roumania down to Trinidad, whose contribution to the total amounted to 15,502,989 barrels. This amount may seem small in comparison with the products of other countries, but could be increased if granted a preference in the United Kingdom markets. This oil preference question is of interest both to Canada and Trinidad."

Mr. Sempill's statement regarding the recovery of oil from coal to the effect that the process is "uneconomical and incapable of swift expansion" is of particular interest and it would appear to be strongly backed up by the report in "Canada's Weekly" of the Associated West Indian Chambers of Commerce in which the appeal is made, under this heading, for "further and careful consideration to be given by His Majesty's Government to the question of according a preference to petroleum when produced and refined within the Empire."

It might perhaps be stated that the figures, given by Mr. Sempill, which show the U.S.A. production of oil to be 72% of the world's total and the two Americas to be 80%, do not coincide with those which have appeared from official sources. These give 62% for the U.S.A. and 77% for the two Americas for 1937 and an estimated 60% for the U.S.A. and 75.5% for the two Americas for 1938.

In speaking of Empire oil production, Mr. Sempill states that "We have some of our own in Burma and Trinidad." There is no mention of Bahrein Island and Canada, the production from each of which in 1938 was practically equal to Burma, with all three more or less tying for second place in Empire production.

If, in the event of war, the Mediterranean and transit through the Suez should become seriously threatened, the Iraq pipe-line could quite easily become isolated. Bahrein Island in the Persian Gulf, India and Burma would become equally so and might perhaps have to face the long haul, with whatever dangers may become attendant, via the Cape of Good Hope; and with Brunei and Sarawak in Borneo dependent possibly on the good-will of Japan, Trinidad and Canada would be all which would remain of the major oil producing countries of the British Empire that were easily accessible.

These are factors which, in consideration of Canada's favoured geographical position, her tremendous increased oil production in the last two years, and her unquestionable promise for the immediate future, should, it is felt, receive the attention they deserve.

GOVERNMENT ROYALTIES

Government royalties collected as a result of the production of oil from Alberta crown lands in 1938 show the following increase over the preceding year:-

1937	$197,784.43
1938	$526,412.80

ADJUSTMENT OF PROBLEMS

An article by C. L. Shaw, appearing in "Maclean's" magazine, issue of February 1st, deals with Alberta's oil situation and offers much from the view point of human interest.

Its title and sub-title immediately arrest the attention. They read as follows:-

> "Alberta's Oil Riddle. Paradox: Turner Valley must produce more oil to become a major pool; Turner Valley is producing too much oil, therefore output is being restricted."

This is unquestionably true but it must be remembered that every major oil area in its infancy is presented with the perplexing problems experienced at present by Alberta. Problems, which by the sudden and unexpected development of great quantities of oil, bring the immediate demands for increased facilities of pipe-lines, refining and marketing. As Mr. Shaw points out, the province has moved at an amazing pace in the last two years. Before the next two have passed, the paradox may have disappeared and much of the problem may be solved.

For a young country such as western Canada, Alberta's oil history covers a long period of time. It is a history which goes back 60 years to that far-away date in 1878 when George M. Dawson, Director of the Dominion Government Geological Survey, whose reports, preserved in the archives of Ottawa, are still consulted, was the first to make mention of the oil occurrences of this province. Within this long period of time, and mostly towards the end of it, some 20,000,000 barrels of oil, as shown in the statement accompanying this review, have already been recovered.

One major field, the field of Turner Valley, is already established. On the basis of some of the most expert opinion to be obtained on the North American Continent, this field is to be productive for over 30 years and from it a minimum of some 200,000,000 barrels of oil is recoverable. The potentiality, on a major scale, of other fields within the province appears to be extremely probable and the future is particularly encouraging.

Alberta's present situation with regard to the marketing of her oil should not be regarded as alarming. Additional markets will be found and the present problems will be solved. Nothing can hold back an industrial activity of such magnitude - an activity which presents such productive evidence for the present and such promise for the future.

The prophesy made at the beginning of 1938, regarding the province's progress for the coming year, has been fulfilled. With the increased area of Turner Valley now established and with the prospect of new and productive fields in the near future, it is repeated for 1939.

Alberta's oil is no longer a provincial question. Already it is more than a dominion one, for it has reached an imperial status with a place second only to Trinidad within the British Empire. With the dawn of a fast approaching tomorrow it is not unreasonable to assume that it may attain an international importance as well.

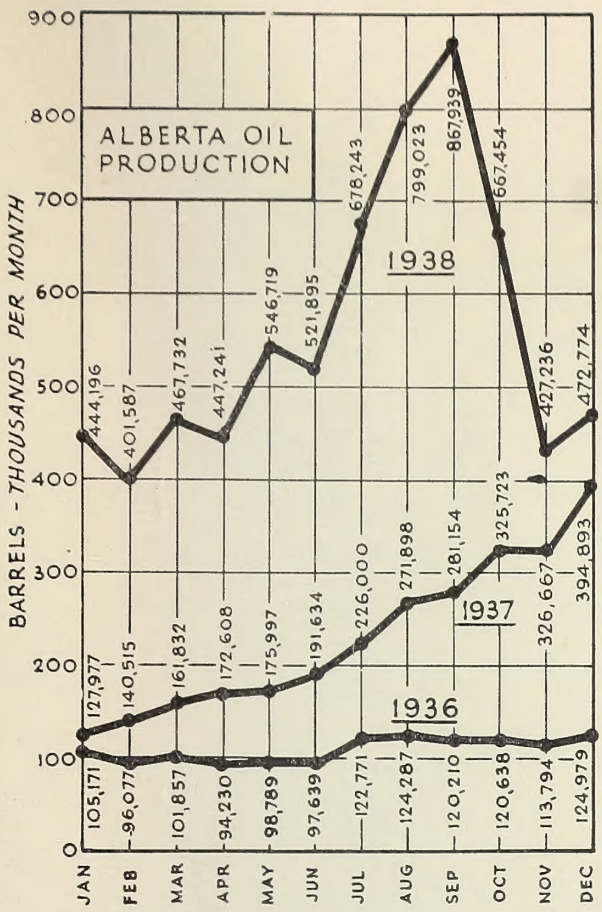
Edmonton, Alberta,
January, 1939.

PETROLEUM PRODUCTION IN THE BRITISH EMPIRE 1932 - 1938

Country	1932 Barrels	1932 Per Cent	1933 Barrels	1933 Per Cent	1934 Barrels	1934 Per Cent	1935 Barrels	1935 Per Cent	1936 Barrels	1936 Per Cent	1937 Barrels	1937 Per Cent	1938* Barrels	1938* Per Cent
Trinidad	10,126,121	43.1	9,561,353	41.2	10,894,363	41.2	11,671,224	40.7	13,237,030	39.2	15,502,989	36.8	17,757,325	35.4
Bahrein Island	902	-	31,377	0.1	185,072	1.1	1,264,807	4.4	4,644,735	13.7	7,762,264	18.4	8,478,654	16.9
Burma	7,073,437	30.1	7,114,311	30.0	7,278,859	27.5	7,181,113	25.1	7,587,718	22.5	7,847,553	18.5	7,557,089	15.0
Canada	1,044,412	4.4	1,145,333	4.8	1,401,895	5.3	1,447,204	5.0	1,504,287	4.5	2,943.750	7.1	6,944,039	13.8
Brunei	1,200,026	5.1	2,035,653	8.6	2,705,350	10.2	3,302,905	11.5	3,296,938	9.7	4,397,038	10.5	5,347,425	10.7
British India	1,743,878	7.4	1,628,803	6.9	1,921,863	7.3	2,037,810	7.1	1,978,329	5.8	2,161,653	4.9	2,292,524	4.6
Sarawak	2,329,733	9.9	2,206,815	9.3	1,942,591	7.4	1,776,593	6.2	1,547,882	4.6	1,655,565	3.8	1,836,748	3.6
Total British Empire	23,518,509	100.0	23,723,648	100.0	26,429,993	100.0	28,681,656	100.0	33,796,819	100.0	42,270,812	100.0	50,213,804	100.0
Total World	1,306,714,101		1,438,767,449		1,517,121,671		1,651,993,118		1,797,993,578		2,046,650,389		1,991,217,979	
Per Cent British Empire of World		1.80		1.65		1.74		1.74		1.88		2.06		2.51

*Preliminary figures

NOTE:- In the total of 6,944,039 barrels shown for Canada in 1938, 6,742,039 barrels or 97.09 per cent were produced in Alberta. This figure represents the actual total. Preliminary figures covering the balance of Canada's production are as follows:- Ontario, 168,000 barrels; New Brunswick, 24,000 barrels; the Northwest Territories, 10,000 barrels. From 1932 to 1938 Alberta's contribution to Canada's production total has risen from 87 to 97 per cent.



ALBERTA OIL PRODUCTION

NOTE:

The reduced production, appearing in these graphs for the last three months of 1938, was due, as previously stated, to increased proration of wells, resulting from seasonal reduction in demand of local market.

ISSUED BY
THE DEPARTMENT OF LANDS AND MINES
PROVINCE OF ALBERTA
Edmonton, January 1939